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Indian Standard

CODE OF PRACTICE FOR SHEEP AND GOATS HOUSING

(*First Revision*)

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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June 1986

Indian Standard

CODE OF PRACTICE FOR SHEEP AND GOATS HOUSING

(First Revision)

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(*Continued on page* 15)

Indian Standard

CODE OF PRACTICE FOR SHEEP AND GOATS HOUSING

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 30 August 1985, after the draft finalized by the Animal Structures and Equipment Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Sheep and goats form an integral part of the rural economy of the country as they provide wool, meat, milk, skin, hair and manure. Wool is the most important product obtained from sheep and in order to meet the need for augmenting wool production in the country, it is necessary that small flocks are raised by the farming communities under controlled conditions. At present, the majority of sheep is owned by itinerating flock owners. It is now increasingly felt that, in the context of earning more foreign exchange, the only way to effect an increase in the production of raw wool is to introduce sheep in the regular agricultural economy. The goat is often termed in India as poor man's cow. An important requirement for protecting these animals against inclement weather and to maintain their health, is to provide them with proper shelter. The object of this code is to suggest suitable and economical structures for raising small flocks of these animals and also to serve as a guide to those farmers who would like to raise these animals as a part of their activity.

0.3 This standard was first published in 1964. In the present revision, various provisions of the standard have been reviewed thoroughly and have been made more comprehensive based on the experience gained in the country.

1. SCOPE

1.1 This code prescribes the general layout of the yard and the methods of construction of the houses for sheep kept for wool and meat production and the goats kept for meat and milk production.

2. TERMINOLOGY

2.0 For the purpose of this code, the following definitions shall apply.

2.1 Sheep

2.1.1 *Ewe* — A female sheep.

2.1.2 *Ram* — A male sheep.

2.1.3 *Lamb* — A young sheep up to four months of age.

2.1.4 *Weaner* — A young sheep from 5 to 9 months of age.

2.1.5 *Yearling* — A young sheep from 10 to 15 months of age.

2.2 Goat

2.2.1 *Doe* — A female goat.

2.2.2 *Buck* — A male goat.

2.2.3 *Kid* — A young goat up to four months of age.

2.2.4 *Weaner* — A young goat from 5 to 9 months of age.

2.2.5 *Goatling* — A young goat from 10 to 15 months of age.

3. PLAN

3.1 It is necessary to provide in the yard for housing sheep and goats, different types of housing for: (a) sheep kept for wool and meat production and goats kept for meat production, and (b) goats kept for milk production. The general plans may be as given in Fig. 1 and 2. The number of units of each type to be provided in the yard would depend on the number of animals to be looked after. The area of each unit shall depend upon the minimum floor space specified for each animal and the number of animals to be kept in each unit. The minimum floor space for each type of animal shall be as given in Table 1.

4. LOCATION

4.1 The housing for sheep and goats shall be located on a dry, elevated and well drained place, not exposed to strong winds, hot or cold. A place, where there is a longer period of shade in a day, is to be preferred. Longer walls should face the north-south direction in plains.

NOTE — In case, the location for construction is within the municipal limits, the plan for construction shall follow the relevant by-laws prescribed by the municipal authorities of the place.

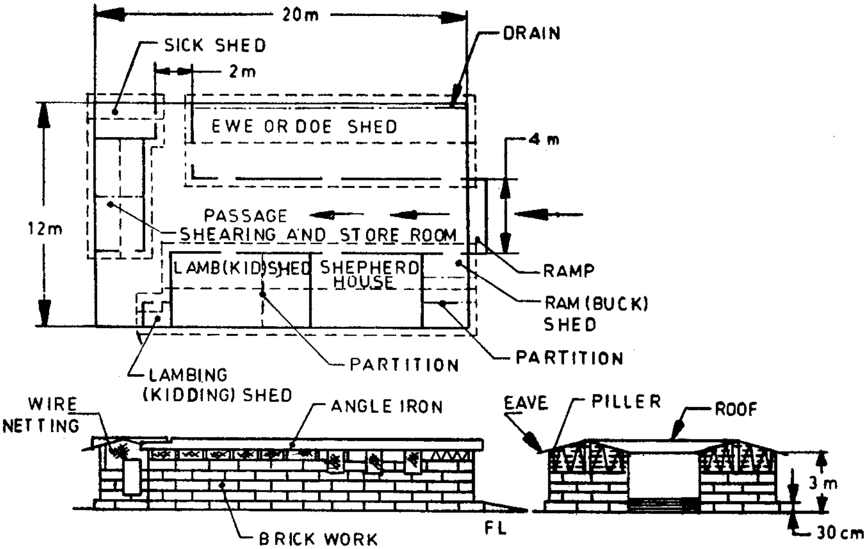
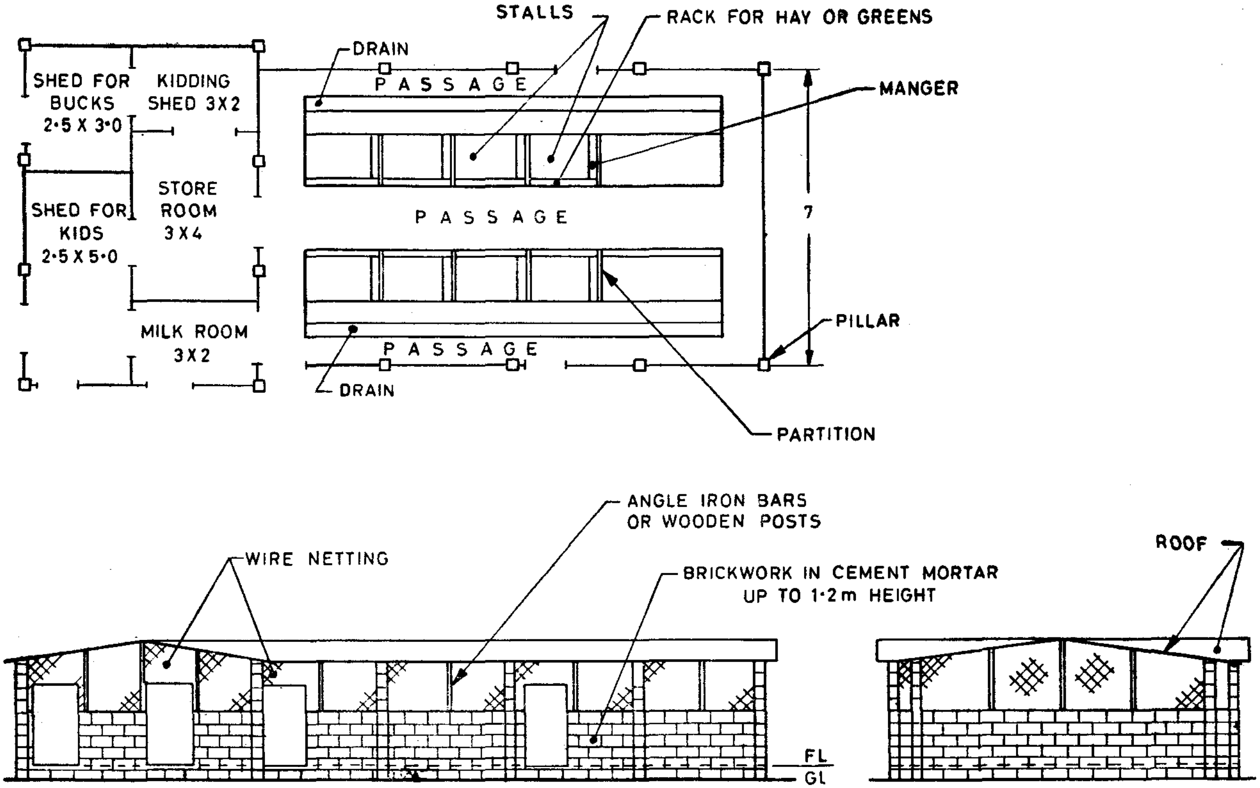


FIG. 1 SHEDS FOR SHEEP (KEPT FOR WOOL AND MEAT PRODUCTION) AND GOATS (KEPT FOR MEAT PRODUCTION)

TABLE 1 MINIMUM FLOOR SPACE REQUIREMENTS PER ANIMAL

(*Clause* 3.1)

SL No.	TYPE OF ANIMAL	FLOOR SPACE/ANIMAL, *Min*
(1)	(2)	(3)
		m²
i)	Ram or buck in groups	1·8
ii)	Ram or buck, individual	3·2
iii)	Lamb or kids in groups	0·4
iv)	Weaner in groups	0·8
v)	Weaner, individual	0·9
vi)	Yearling or goatling	0·9
vii)	Yearling or goatling, individual	1·0
viii)	Ewe or doe in groups	1·0
ix)	Ewe or doe, individual	1·2
x)	Ewe with lamb	1·5



All dimensions in metres.

FIG. 2 SHED FOR GOATS (KEPT FOR MILK PRODUCTION)

SECTION 1 SHEEP KEPT FOR WOOL AND MEAT PRODUCTION AND GOATS KEPT FOR MEAT PRODUCTION

5. UNITS

5.1 A yard meant for keeping sheep for wool and meat production and goats for meat production may have the following units;

a) Sheds,
b) Shearing shed and store room, and
c) Shepherd's room.

5.1.1 *Sheds* — Run or coral at the rate of 2 m^2/animal and 1·2 m above the ground should be provided to each shed. Shed shall be fenced. The sheds of the following types are required for housing the sheep and goats:

a) Ewe or doe shed,
b) Ram or buck shed,
c) Lambing or kidding shed,
d) Lamb or kid shed,
e) Weaners shed,
f) Yearling or goatling shed, and
g) Sick shed.

5.1.1.1 *Ewe or doe shed* — These sheds shall be used for housing ewes or doe kept for breeding purpose. The shed shall be 15 × 4 m size and 3 m high and should accommodate not more than 60 ewe or doe.

5.1.1.2 *Ram or buck shed* — The ram or buck shed shall be used for housing rams or bucks kept for breeding purpose. The shed shall be 4×2·5 m size and 3 m high and should accommodate not more than three animals. The shed shall be partitioned lengthwise to form three equal compartments, as shown in Fig. 1. The partitions may be either of wooden planks or half-cut *BALLIS*. The partition shall be not more than one metre high from the floor. In the partition, there should be a gap of 100 to 150 mm between each *BALLI* or plank to enable the rams or bucks to see one another.

5.1.1.3 *Lambing or kidding shed* — These sheds shall be used as maternity room for ewes or doe. The shed shall be 1·5 × 1·2 m size and 3 m high. A manger for holding feed, hay and a bucket for keeping water shall be provided in the shed.

5.1.1.4 *Lamb or kid shed* — The lamb or kid shed shall be used for housing lambs or kids until they attain maturity and are weaned and also those animals which are weaned but have not attained maturity. The shed shall be 7·5 × 4 m in size and 3 m high to accommodate not more than 75 animals. The shed shall be partitioned breadthwise dividing it into two compartments. The compartment having the dimensions 5 × 4 m shall be used to keep the unweaned animals and the other compartment having dimensions 2·5 × 4 m shall be used for keeping the weaned but immature animals. Lamb or kid shed should be provided at the rate of five such units for 60 breadable ewes or doe.

5.1.1.5 *Sick animal shed* — There shall be a sick shed for segregating ailing and disabled animals. The shed shall be 3 × 2 m size and 3 m high. There shall be a door one metre wide and two metres high on one of the broad sides of the shed. The lower half of the door may be made of wooden planks and the upper half of wire netting. There may also be a window 0·7 m broad and 1·2 m high with a wire net covering.

5.1.2 *Shearing Shed and Store Room* — The shearing and store room may consist of two compartments with a dividing wall. One room may be exclusively meant for storing wool and shearing equipment and the other for keeping feed and medicines. The room may be 6 × 2·5 m size and 3 m high. There shall be a door one metre wide and two metres high in the front side of the room. The door leaf may be made of wooden battens. It may also have two windows, one on each side of the long sides of the room. Each window may be 0·7 m wide and 1·2 m high. The windows may be covered with wire-netting. One coral or holding pen for at least 30 sheep in front of the shearing shed and another holding pen behind the shearing shed may be provided to hold shorn sheep after shearing.

5.1.3 *Shepherd's House* — The shepherd's house meant for the caretaker shall be located at a convenient place in the yard. The house may be 6 × 4 m size and 3 m high. There shall be a door one metre wide and two metres high on the long side of the shed facing the passage of the yard (*see* Fig. 1). The door leaf may be of wooden planks. There may be four windows; one of these facing the passage of the yard and the other three facing outside (*see* Fig. 1). Each window may be 0·7 m broad and 1·2 m high and covered with wire-netting.

6. CONSTRUCTIONAL DETAILS OF UNITS

6.1 Floor — The flooring may be either of *moorum* or of strong wooden battens and, where the rainfall is quite heavy, the latter type of flooring may be preferred. In the case of wooden batten flooring, the width of each plank shall vary from 75 to 100 mm and the thickness between 25 and 40 mm. The sides of the planks shall be well rounded and the clearance between two planks shall range between 10 to 15 mm to facilitate the disposal of dung and urine. The wooden-batten flooring shall be constructed at a height of at least one metre above the ground level. In this case, a suitable ramp or steps of wooden planks shall be provided. In the case of *moorum* flooring, a plinth wall between 150 and 300 mm in height shall be provided. For the shearing and store room and shepherd's room the flooring may be *moorum* or brick in cement mortar, and the floor shall be levelled properly. The floor should be *Kachha* or sandy under hot dry conditions of arid or semi-arid areas. A suitable drain should be provided at the end of the floor side. The depth of the drain should be 75 mm and width 300 to 400 mm.

6.2 Walls — The walls may be of brick in lime mortar up to two-third of their height from the floor level (*see* IS : 1077-1976* and IS : 2212-1962†). The upper one-third portion of the walls may be of bird-proof netting. The chain-link netting may be supported by angle irons of size 50 × 50 × 6 mm section and brick masonry columns placed alternatively at 1·5 m centre to centre. In the case of lamb or kid shed, the upper one-third part may be of wire netting supported by angle irons of size 50 × 50 × 6 mm at the four ends. The walls on the three sides of the shearing and store room may be of brick in cement mortar. The front wall (one of the broad sides of the room) may be of brick in cement mortar up to one-half the height from the ground level and the upper one-half portion may be of wooden battens or wire netting.

6.3 Roof — The roof may be lean-to or gabled type (*see* Fig. 2). The slope of the roof shall depend upon the rainfall and other climatic conditions of the region. The roof may be made of plain or corrugated asbestos cement sheets (*see* IS : 459-1970‡), plain or corrugated galvanized steel sheets (*see* IS : 277-1977§), aluminimum sheets (*see* IS : 737-1974||); asphalted corrugated or plain light roofing material or *SIRKI* thatch. In case the roof is thatched, the thatching shall be at least 15 cm in thickness and it shall be rain-proof and fire-proof. In heavy rainfall areas gunny sacks treated with cement-lime mixture (*see* **6.3.1**) may be used with thatch. The eaves of the roof shall project out sufficiently long to prevent the rain water entering into the house.

6.3.1 *Preparation of Cement-Lime Mixture* — Stir thoroughly 12 parts by volume of cement and three parts by volume of lime (*see* IS : 712-1973¶) in 20 parts by volume of water. Add one part by volume of common salt

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*Specification for common burnt clay building bricks (*third revision*).

†Code of practice for brick work.

‡Specification for unreinforced corrugated and semi-corrugated asbestos cement sheets (*second revision*).

§Specification for galvanized steel sheets (plain and corrugated) (*third revision*).

||Specification for wrought aluminium and aluminium alloys, sheet and strip (for general engineering purposes) (*second revision*).

¶Specification for building lime (*second revision*).

(*see* IS : 797-1982*) and one-half part by volume of alum (*see* IS : 258-1967†) and stir until all ingredients are well mixed. Apply the mixture evenly with the help of a brush on the inner surface of the gunny sack. Give two coats of the mixture on the outer surface of the gunny sack. Stretch the gunny sack and dry in the sun until it becomes stiff.

6.4 Gate — Each shed may be provided with one or more gates either on the long or broad sides of the sheds depending upon the dimensions (*see* Fig. 1) of the shed. The dimensions of each gate may be 0·8 m broad and one metre high. The gate leaf and frame may be made of wooden battens. It shall fit the entrance closely.

6.5 Manger — The manger may be either of cement concrete or of wood with two compartments for providing feed and hay. A separate hay rack may also be provided by fixing at level or slightly below the heads of the animals. With the help of clamps, the manger may be raised within the height ranging between 450 and 600 mm from the ground. The water trough may be of cement concrete or galvanized steel pails or buckets and may be fixed or hung from a hook fixed to the walls. The manger may also be of portable type. The number of mangers and water troughs in each shed may vary according to the number of animals.

6.6 Dipping Tank — The dipping tank, to protect the animals from infection, may be made either of galvanized steel sheets or constructed of stone or brick in cement mortar, whichever is likely to prove economical, according to local conditions. The dimensions of a typical tank are given in Fig 2. If a galvanized steel tank is used, it shall be well bedded down and the soil rammed tight against it to prevent the sides of the bath from bulging when it is filled. If the base of the solid is unstable, the tank may be bedded in cement concrete. The dipping tank may be at one side of the yard.

6.7 Foot-bath — A foot-bath made of galvanized steel sheets, or brick in cement mortar shall be provided at the entrance to the yard to protect the animals from foot-rot disease. These baths may be embedded in the soil suitably.

6.8 Lighting — Provision for lighting shall be made in case electricity is available. A 25 W bulb for each 10 m^2 floor space or 60 W bulb for 25 m^2 space or equivalent fluorescent tube light may be provided.

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*Specification for common salt for chemical industries (*third revision*).

†Specification for potash alum (*first revision*).

SECTION 2 HOUSING FOR GOATS KEPT FOR MILK PRODUCTION

7. UNITS

7.1 The type of housing for goats may have the following units:

a) Sheds,
b) Milk room, and
c) Store room.

7.1.1 *Sheds* — The following four types of sheds are required for housing goats exclusively kept for milk production:

a) Dairy goat shed,
b) Buck shed,
c) Kid shed, and
d) Kidding shed.

7.1.1.1 *Dairy goat shed* — The shed shall consist of stalls for keeping milking doe. The stalls may be arranged in two rows with a passage in between them. The dimensions of each stall meant to keep a single milking doe may be 1·2 m wide and 1·4 m long (*see* Fig. 3). The length of the shed shall depend upon the number of milking doe kept for milk production. There shall be partitions (*see* **8.4**) separating on stall from the other. Racks for hay and greens may be provided in the shed.

7.1.1.2 *Buck shed* — The shed shall be meant to keep bucks. There shall be partitions made of either wooden planks or half-cut *ballis* to divide the shed into two equal compartments for housing two bucks. The buck shed shall be away from the milk room and the kidding shed.

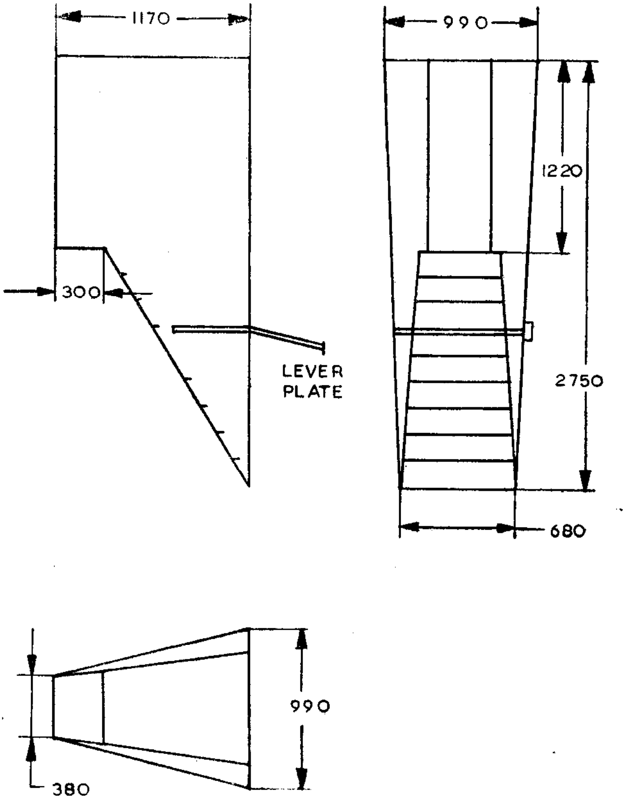
7.1.1.3 *Kid shed* — A shed used to accommodate young goats or kid.

7.1.1.4 *Kidding shed* — A shed used as maternity room for doe.

7.1.2 *Milk Room* — A room where the excess of milk is kept for disposal and sometimes also used for milking doe.

7.1.3 *Store Room* — A store room should be provided in the shed for keeping feed and other material.

7.2 The dimensions of the various sheds and the milk room may be as given in Fig. 3.



All dimensions in millimetres.

FIG. 3 TYPICAL DIPPING TANK

8. CONSTRUCTIONAL DETAILS OF THE SHEDS AND THE MILKING ROOM

8.1 Floor — The floor should be made of cement concrete tiles (*see* IS : 1237-1980*), or of movable or immovable slatted wooden platform raised 450 mm above the ground. The floor shall have a slope of 25 mm for every one metre. For each row of stalls, there shall be a brick masonry drain 300 to 400 mm wide and 75 mm deep.

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*Specification for cement concrete flooring tiles (*first revision*).

8.2 Walls — The walls may be of brick in cement mortar up to 1·2 m in height and the rest of the portion shall be coverd with wire-netting supported by angle irons of 50 × 50 × 6 mm section or wooden posts of suitable section. The walls of the stalls adjoining the passage shall be 1·5 m high and they shall be of brick in cement mortar.

8.3 Roof — *See* **6.3** and **6.3.1**.

8.4 Partitions — The partitions separating one stall from the other may be of either simple wooden planks, galvanized steel sheets or abestos sheets. The partition shall be at least 150 mm above the floor level.

8.5 Manger — The manger may be constructed as a raised wooden frame with openings to fit galvanized steel pails for keeping feed and water for goats (*see* Fig. 4). It may be constructed in the partition walls and be supported on iron or wooden brackets. These shall be raised at least 450 to 600 mm from the ground. The place to keep hay and other greens may be in the form of a rack fixed in the front wall from where the animals could pull out the greens when they requires. A feeding trough (*see* Fig. 5) may also be used.

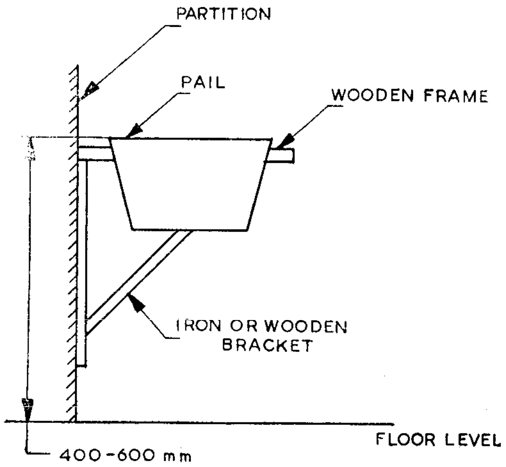
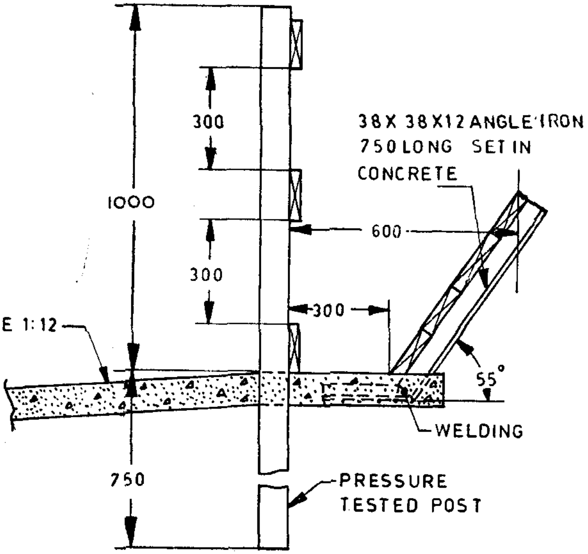


FIG. 4 DETAILS OF MANGER FOR GOATS

8.6 Lighting — *See* **6.8.**



All dimensions in millimetres.

FIG. 5 FEEDING TROUGH

(*Continued from page* 2)

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INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2